DOCUMENT RESUME

ED 176 809 JC 790 164

TITLE Equity and County College Financing.
INSTITUTION New Jersey State Commission on Financing Postsecondary Education, Trenton.
PUB DATE Feb 77
NOTE 68p.; Pages 52-56 of the original document contain copyrighted material and are therefore not available. They are not included in the pagination

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Change Strategies; Community Colleges; County School Systems; *Educational Finance; *Equalization Aid; Expenditure Per Student; *Finance Reform; Financial Policy; Financial Problems; Financial Support; *Junior Colleges; *State Aid; *Statewide Planning; Tax Support
IDENTIFIERS *New Jersey

ABSTRACT

An analysis by the Commission on Financial Postsecondary Education of the system by which New Jersey supports county colleges revealed disparities and inequities among the New Jersey counties in wealth and effort per full-time equivalent student, and current state financing practices that aggravate this problem. In response, alternative state financing systems were proposed to provide more equitable funding. This report first illustrates how state financing based on a "flat-grant" system exacerbates the differences in wealth between counties caused by variations in county property values and taxation efforts. The current system of county college support is then discussed, with consideration given to all counties, county colleges, and county appropriations to colleges. The report than describes alternative financial systems which treat all counties as if they had the same wealth, so that counties making similar taxation efforts will generate similar revenues. The conclusion lists several additional factors to be considered before any of the alternative plans can be implemented. Several illustrative charts and tables are included throughout the text, and three appendices provide: (1) a formula for the equalization of state funds to the counties, (2) a discussion of possible county responses to an equalizing model, and (3) the raw data used to make certain calculations. (JP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED176809

EQUITY AND COUNTY COLLEGE FINANCING

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
John Augenblick

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

JC 790 164

COMMISSION ON FINANCING POSTSECONDARY EDUCATION
STATE OF NEW JERSEY

A PUBLIC COMMISSION APPOINTED BY THE NEW JERSEY BOARD OF HIGHER EDUCATION

EQUITY AND COUNTY COLLEGE FINANCING

A study conducted by the

State of New Jersey

COMMISSION ON FINANCING POSTSECONDARY EDUCATION

February 1977

BOOHER COMMISSION MEMBERSHIP

Edward E. Booher, Chairman:	Past President, Books and Education Services Group, McGraw-Hill, Inc.
Dr. Lester E. Chandler, Vice-Chairman:	Professor Emeritus, Economics Department, Princeton University
Dr. Fred G. Burke:	Commissioner, New Jersey Department of Education
Hon. Albert Burstein:	Member, New Jersey General Assembly, 37th District
Vincent Calabrese:	Assistant Commissioner for Education
Thomas Cochran:	Governor's liaison, Special Assistant to the Governor
Sara Douglass:	Department Manager, Johnson & Johnson
Ralph A. Dungan:	Chancellor, New Jersey Department of Higher Education (ex officio)
Wayne J. Holman:	Former Treasurer, Johnson and Johnson
Ruth Mancuso:	President, New Jersey Board of Education
Albert W. Merck:	Director, Merck and Company, Inc.
Frank R. Nero:	Somerset County Freeholder
Dr. Haskell Rhett:	Liaison to Commission and Assistant Chancellor New Jersey Department of Higher Education
Dr. Beryl Robichaud:	Sr. Vice President, McGraw-Hill, Inc.
Don Thomas:	General Counsel, National Urban League, Inc.
Dr. William Wenzel:	Acting Assistant Commissioner, Department of Education
Hon. Stephen B. Wiley:	State Senator, 23rd District, and Chairman, Senate Education Committee
Dr. Stephen Wright:	Vice President, College Entrance Examination Board and Member, State Board of Higher Education

BOOHER COMMISSION STAFF

Andrew H. Lupton, Executive Director
Dennis R. Reigle, Deputy Director

Research

John G. Augenblick, Senior Research Associate
Stanley Baum, Research Associate
Terry A. Clark, Research Associate

Research Assistants

John Cohen
Victor Crain
Joseph Heyison
Holly Kennedy
Genevieve Muinzer
Richard Skolnik
Marian Zamost

Support

Donna J. Seplavich, Administrative Assistant
Colleen Gleason
Mariann Tindik
Catherine Weber

Principal Investigators

John G. Augenblick, Research Director
John Cohen, Research Associate

Preface

After considerable analysis and debate the Commission has concluded that the distribution of state support to county community colleges should be "equalized" to reflect the relative ability to support the community college among the different counties. The issue of equalized state support is both complex and controversial. Rational discussion is made even more difficult because of the acrimony that has surrounded the State's movement to provide a form of equalized support for elementary and secondary education through the "thorough and efficient" legislation.

It is the opionion of the Commission that, despite the obstacles mentioned, the effects of the current State support system create such serious inequities that adjustments must be considered. The following paper clearly indicates the disparities among counties in wealth per full time equivalent student and the correlated variances in tax effort that counties make to expend the same amount per student.

The wealth per student of the least affluent county in which a community college is located is approximately one-quarter the wealth per student of the most affluent county with a community college. Concurrently the tax effort in support of community colleges varies by almost four to one. Taxing power, which is the dollars raised per full time equivalent student per unit of effort (.01 mills), also varies by four to one among counties with colleges.

The State's strategy for financing postsecondary education should be reviewed with an eye toward ameliorating these inequities. The attached paper

presents an analysis of the magnitude of the problem, illustrates why the current financing approach aggravates the problem, and suggests one possible solution. While the concepts are complex and the issues volatile, the Commission urges that the State examine the negative implications of the current approach and seek constructive alternatives.

Andrew H. Lupton

Executive Director

I

The Role of the State in County Community College Finance

In many states community college financing is based on a mix of revenue sources including county and state appropriations, student tuition and fees, private gifts, federal grants and endowment funds. In New Jersey, counties as a group make the largest contribution to the county colleges. Furthermore, their share of the county colleges' expenditures has been increasing as costs have risen, as a result of ceilings on tuition, a constant level of state support per student and the negligible contribution from other sources.[1]

In New Jersey per student support has never been uniform across counties. The shared state-county responsibility for community colleges was created to promote institutional autonomy. However, one of the products of this approach is that counties determine the expenditure levels of their colleges and both the tax rates of county support for the two year colleges and proportion of tax receipts to be used to support the county college. The magnitude of difference in the levels as well as the variance among counties in assessed property bases from which revenues are derived, raises a number of questions about the appropriate role of the state in financing county colleges. To date the issues that result from even an elementary analysis of equity have not been adequately addressed.

Counties generate their revenues, including those which support county colleges, by claiming a portion of the property taxes collected by the

---

[1] Other source revenues were expected to comprise 4.7% of total county college budgeted expenditures in FY 76. Source: Community College Finances 1975-76, Table 13, page 39.

municipalities in the county. These local property taxes, although collected for reasons of tradition, convenience and relative stability, have been criticized on the basis of their inequitable and regressive impact on taxpayers.[2] When property is used as the tax base, poorer counties must make greater sacrifices than wealthier counties to generate equal levels of revenue. Where the variation in property wealth is large, the poorer counties may find that the effort needed to raise support equal to that enjoyed by residents of richer counties is so great that it becomes prohibitive. Under such conditions, the student residing in the poor county suffers because his county, although willing to make considerable effort, is simply unable to generate as much revenue as the richer counties can with much less effort.

A financing system that requires counties to help support community colleges without considering their relative abilities to provide such support is inequitable. Such a system is insensitive to the varying burdens placed on the counties; it is not "fiscally neutral" toward the wealth of counties.[3] While it is difficult to define the precise relationship between expenditures per student and educational outcomes, a financing system which permits these expenditures to be determined by the geographic residence of the student is unacceptable. As noted by Coons, Clune and Sugarman in 1970, "Whatever it is that money may be thought to contribute to the education of children, that commodity is something highly prized by those who enjoy the greatest measure of it. If money is inadequate to improve education, the residents of poor

---

2 For a discussion of the pros and cons of the property tax see Netzer, D. Economics of the Property Tax. Washington, D.C.: The Brookings Institution, 1966.

3 Fiscal neutrality is a court defined equity standard in school finance. It simply means that differences in expenditures per student cannot be related to a county's wealth.

districts should at least have an equal opportunity to be disappointed by its failure."[4]

The following sections illustrate the problem, review the current configuration of county college finances in New Jersey and present several alternative financing systems which would address the inequities found in the current system. In addition, methods for measuring the extent to which these alternative financing systems overcome the inequities are set forth. Finally, the conditions which make equity difficult to attain are delineated and further research requirements are noted.

II

An Illustration of the Problem

When counties rely on a property tax to finance their contribution to county colleges, county college support levels may bear little relationship to the level of sacrifice county taxpayers make in generating the funds. A simple example, as shown in Table 1, illustrates the point.

TABLE 1

AN EXAMPLE OF A COMPARISON OF COUNTY SUPPORT LEVELS AND ABILITY[a]

County	Property Value Per Student	Mill Rate	Support Level Per Student
A	$1,000,000	1 Mill	$1,000
B	500,000	2 Mills	1,000
C	250,000	3 Mills	750

[a] Counties A, B, and C are assumed to have an equal number of students.

[4] Coons, J.E., Clune, W.H., and Sugarman, S.D. Private Wealth and Public Education. Cambridge, Massachusetts: The Belknap Press of the Harvard University Press, 1970, p. 30.

County A has $1,000,000 in property value and is willing to tax itself at 5 mill, raising a total of $5,000 per student. County B, with $500,000 of property value, would also like to raise $5,000 and so must tax itself at 2 mills. County B has to make twice the effort of County A to achieve the same level of support. County C has $250,000 in property value and would also like to raise $5,000. To do so the county freeholders would have to set the tax rate at 4 mills. The taxpayers feel they cannot afford to pay that much tax but are willing to sacrifice to the extent of a 3 mills tax. At 3 mills, County C only raises $750 despite making three times the effort of County A and one and a half times the effort of County B.

This problem is not necessarily alleviated when the state becomes a partner in financing. In fact, it is aggravated when the state disburses appropriations through a "flat-grant" system, i.e. allotting a fixed sum for every student. Under such a system the burden placed upon the poorer counties in order to qualify for state funds is greater than the burden on wealthier counties, because the former have to make greater sacrifices to achieve a given level of expenditures.[5] As a result, richer counties can more readily afford to take advantage of the state subsidy program and can also spend at levels above the sum of any expected county and state contributions more easily than poorer counties. Given the legislative constraints in New Jersey an increase in the size of the state's flat-grant per student only improves the relative position of wealthier counties, because they can better afford to take advantage of the larger state subsidy.

---

[5] Some state support systems can be termed incentive systems; either the county must contribute an amount to qualify for any state support or the state alters its support as county support changes. In New Jersey, the state's contribution cannot exceed one-half the expenditures of a particular county college. See the County College Act, N.J.S.A. 18A:64A-22. Since the state also established a tuition ceiling and since all college expenditures exceed twice this amount, the county must make some contribution to the college's revenues.

Another example illustrates the relationship between flat-grants from the state and the county's contributions when both provide some support for community colleges. Table 2 shows Counties A, B, and C with the same property values, mill rates and county support levels as shown in Table 1. In addition, dollars raised per mill and various state subsidies are presented. County dollars per mill is the number of dollars a county raises for every mill at which it taxes itself. County A generates $1000 at one mill, therefore raising $1000 per mill (support level divided by mill rate). County B generates $1000 at two mills, resulting in $500 per mill. County C at three mills raises $750, or $250 per mill. County A can raise $500 more per mill than County B and $750 more than County C in this hypothetical example. At an equal tax rate, County A can generate far greater revenue than the other two counties.

In this example the state subsidy per student is $500, which yields a total public support level of $1500 in Counties A and B and $1250 in County C. Total public dollars raised per mill can be determined using the same method as was used to find county dollars raised per mill, i.e. by dividing the total public support level (county support level plus state subsidy) by the mill rate in each county. County A, still making a one mill effort, generates $1500 in total public support. County B at two mills and $1500 in total public support raises $750 per mill. County C at three mills and $1250 in public support raises $417 per mill. County A now raises $750 more per mill than County B (as compared to $500 more per mill before the state subsidy) and $1083 more per mill than County C (as compared to $750 before the state subsidy). Although Counties B and C are better off with the state subsidy in absolute terms (their total expenditures have been increased without raising their tax rate), their positions have deteriorated relative to County A.

TABLE 2

AN EXAMPLE OF THE EFFECT OF PROVIDING A STATE "FLAT GRANT" PER STUDENT TO ALL COUNTIES

	County Support				State "Flat Grant" of $500		State "Flat Grant" of $700	
County	Property Value Per Student	Mill Rate	County Support Per Student	County Dollars Raised Per Mill	Total Public Support Per Student	Total Public Dollars Raised Per Mill	Total Public Support Per Student	Total Public Dollars Raised Per Mill
A	$1,000,000	1	$1,000	$1,000	$1,500	$1,500	$1,700	$1,700
B	500,000	2	1,000	500	1,500	750	1,700	850
C	250,000	3	750	250	1,250	417	1,450	483

Under a flat-grant system of state support, County A can spend an even greater amount per student with less effort than Counties B and C. Similarly the position of County C has declined with respect to County B.

Were the state flat grant to be increased to $700 as shown in the example in Table 2, County A's relative advantage would be improved even further. Counties A and B would raise $1700 per student while County C would raise $1450 per student. County A would now generate $1700 of public support per mill, $850 more than County B and $1217 more than County C.

Another way to look at this outcome is to compare the incremental public support per mill gained by the state's increasing its flat grant by $200, from $500 to $700. Compared to the previous public support per mill, County A gains the full $200, while County B gains $100 and County C gains only $67. Clearly, a flat-grant system exacerbates the differences caused by variations in county property value and increasing the size of the flat-grant from the state does little to alleviate the relative inequities.

III

The Current System of County College Support

The following discussion is based on the data shown in Table 3, in which comparisons are made between various indicators of county ability and support levels for FY 1976.[6] All counties, all New Jersey county college students, and all county appropriations to county colleges (direct appropriations to county colleges as well as charge-backs for out-of-county students) are considered. Property values are expressed at 100% valuation.

---

[6] For data sources, see Appendix C.

TABLE 3

INDEX OF COUNTY SUPPORT FOR COMMUNITY COLLEGES, FY 76

County	(1) Wealth[a] per FTE	Rank	(2) County Support[b]	Rank	(3) Effort[c]	Rank	(4) Taxing Power[d]	Rank
Atlantic	$ 892,472	20	$686	10	.77	3	$ 16.7	21
Bergen	2,815,829	6	734	8	.26	15	51.3	6
Burlington	1,034,644	17	713	9	.69	5	19.0	17
Camden	1,051,221	16	629	12	.60	8	20.5	16
Cape May*	5,232,084	1	414	21	.08	21	126.8	1
Cumberland	833,442	21	565	15	.68	6	17.1	19
Essex	1,327,365	14	801	7	.60	7	23.4	13
Gloucester	1,053,462	15	817	6	.78	2	18.2	18
Hudson	4,363,725	2	442	18	.10	20	104.2	2
Hunterdon*	2,915,401	5	902	3	.31	14	48.5	7
Mercer	981,952	18	824	5	.84	1	17.0	20
Middlesex	1,503,261	12	627	14	.42	11	29.2	12
Monmouth	1,379,079	13	992	1	.72	4	22.1	14
Morris	1,699,435	9	423	19	.25	16	40.9	8
Ocean	1,608,124	11	656	11	.41	12	30.6	11
Passaic	3,807,131	3	848	4	.22	17	65.8	3
Salem	895,515	19	422	20	.47	10	21.7	15
Somerset	1,998,629	8	955	2	.48	9	32.4	10
Sussex*	2,748,282	7	563	16	.20	18	58.2	5
Union	1,640,697	10	524	17	.32	13	35.1	9
Warren*	3,356,621	4	628	13	.19	19	64.6	4
Low	833,442		414		.08		16.7	
High	5,232,084		992		.84		126.8	
Weighted Mean	1,657,016		696		.42		32.0	
Standard Deviation	1,299,890.14		174.26		.2356		30.31	

Notes: Table 3

*
Counties without community colleges.

a
Total county property value ÷ total resident FTE attending any New Jersey community college.

b
Direct appropriations to in-county community colleges + appropriations for reimbursements to out-of-county colleges ÷ total resident FTE attending any New Jersey community college.

c
Millage rate needed to generate county higher education appropriations. (1000 x total county higher education appropriations ÷ county property value.)

d
Total dollars raised per FTE per unit of effort (.01 mills). [(County support + state support) ÷ (100 x effort)]

Wealth

Wealth, shown in column (1) of Table 3, is defined as the property value available for each student (property value per FTE) or the tax base available per student from which the county can generate revenues for county colleges. This figure is employed as the measure of a county's ability to support higher education, instead of total property value, because the figure implicitly describes the relationship between gross resources (total property value) and gross task (total student population).

Bergen County, although the richest county in terms of total property value, ranks only sixth in "wealth" because of its relatively large student population. The large enrollment results in less property value which can be taxed per student than in the counties ranked above Bergen County. Counties without county colleges rank relatively high on this scale. The low student populations and not high property values causes these rankings. [Wealth, then, is the relative property value available to a county after considering student populations.]

Table 3 demonstrates large variations in the wealth of different counties, ranging from under a million dollars per FTE student in Cumberland County to over five million dollars per FTE student in Cape May County. These figures, when turned into ratios, indicate an excess of six to one separating the "wealthiest" from the "poorest" county.

Support

County support, as indicated in Column (2) of Table 3, measures the total county appropriations per student, including both direct county appropriations to county colleges and reimbursements or charge-backs for

students attending out-of-county. The assumption made is that a county's appropriations are used only to pay for that county's residents, whether attending in-county or out-of-county community colleges. Non-resident student costs are met through a combination of charge-backs to the home county, by the higher "out-of-county" tuition, and by the current state flat-grant of $600 per FTE student.

Monmouth County, the county with the highest support level, spends over twice as much as Salem County, the county with the lowest support level among those counties with community colleges. The state should be neutral to the variation in county support if the differences are caused solely by varying efforts or willingness to sacrifice for higher education on the part of the taxpayers. However, if the variations in support are related to differences in county wealth the wealthier counties have an advantage which should not be promoted by the state.

Effort

Effort, Column (3) in Table 3, is the millage rate needed to generate total county higher education appropriations, given total county property value. Effort is not intended to represent the actual tax rate counties charge their property owners to support county colleges. In fact, such a rate is not explicitly defined by counties. Rather the tax rate in support of county colleges implicitly results when some portion of all tax revenues collected are allocated to the county college by the Board of Chosen Freeholders. The actual tax rate varies from district to district within a county, due to assessment practices, and is set at a level which raises revenues for many county services in addition to the county colleges.

The implicit tax effort expresses the mathematical relationship between total county property value and total county appropriations to county colleges. The effort required to Atlantic County taxpayers to raise $686 per student, for example, is $.77 per $1000 of property value, or .77 mills. Bergen County is so much wealthier than Atlantic County that it can generate more support ($734 per student) while making only one third as great a sacrifice (.26 mills). The magnitude of variance is indicated by the fact that in 1975 the effort made by Mercer County was four times that made by Passaic County although Passaic County provided slightly more support per student.

In an equitable system, tax effort should determine the level of support which a county can provide to its community college. Table 3 demonstrates that this is not the case in New Jersey. A readily observable relationship between county tax effort and county support does not exist. Atlantic County, although making the third highest effort in the state, ranks only tenth in per student county support. (Seven counties generate more revenues than Atlantic County while making less effort.) Cumberland County with the sixth highest effort ranks only fifteenth in county support. Passaic County can provide higher appropriations to its county college than Mercer County with about one-quarter as great an effort. Somerset County makes an effort one-hundreth of a mill greater than Salem County but generates well over twice as much county support.

The strength of the actual relationship between the two variables, county support and county tax effort, can be measured using a correlation coefficient (r).[7] An additional piece of information is generated when the correlation coefficient is multiplied by itself (r^2). The r^2 measures the percent of variation in one variable that is explained by variation in another variable.

---

[7] The correlation coefficient is a statistic with a value ranging from -1.0 (perfect inverse relationship) through 0.0 (no relationship) to 1.0 (perfect positive relationship). Values between -0.5 and +0.5 are considered to show weak relationships between variables. Values greater than .5 in absolute value tend to show stronger relationships when the statistic is significant.

If effort is related to county support across all counties, the correlation coefficient should be highly positive and variation in effort should explain a very high percentage of the variation in county support. In fact, there is a positive but weak correlation between support and effort and the r^2 is small ($r = .47$, $r^2 = .22$). In light of this weak relationship, it is evident that county tax effort is not highly related to county support levels.

Taxing Power

Taxing power, shown in Column (4) of Table 3, is the public dollars produced per student per unit of effort (.01 mills). This concept relates the total support generated per county college student (county plus state support) to the effort made by the county in raising its support. As in Table 2, total public support per FTE student is divided by the mill rate which yields an indicator of relative tax effectiveness (the number of dollars which a county can raise per one-hundredth of a mill).

In an equitable system every county should raise the same number of dollars per unit of effort. That is, taxing power should be equal across all counties. When taxing power across all counties is consistent, determination of support levels will be based upon the willingness of counties to tax themselves. If taxing power varies, poorer counties will be at a relative disadvantage with respect to wealthier counties.

Table 3 depicts the large differences between counties in taxing power. The number of dollars raised per mill varies from the lowest county, Atlantic County, to the highest county, Cape May County, at a ratio of nearly eight-to-one. Among the counties with community colleges, the ratio of highest to lowest taxing power is almost four-to-one.

The disparity in taxing power among all counties can be measured by determining that variable's standard deviation.[8] A larger standard deviation indicates greater differences among counties and therefore a greater degree of inequity. As one can see in Table 3, in New Jersey the standard deviation of taxing power is 30.31, rather than approaching zero which is the point where taxing power would be the same for all counties. This measure, in conjunction with the other indices cited, indicates that significant inequities exist in the county college financing system.

IV

Alternative Financing Systems

The Commission has recommended an increase in the level of state funding of county colleges.[9] One of the stated goals in the Charge given to the Commission was to develop a system that promoted an equitable means of financing postsecondary education. As the previous analysis has shown, simply increasing the state's appropriations to county colleges will only serve to aggravate present inequities if incremental funds are allocated according to current practices.

The method proposed in this paper to distribute state aid to county colleges is one of a variety of "equalizing" techniques.[10] The concept underlying the method is to treat all counties as if they had the same wealth so that counties making a similar effort will be able to generate similar revenues. This method neither prescribes the tax effort a county should make nor sets

---

[8] The standard deviation is a statistical measure of the dispersion of a set of points (values) relative to the average (mean) of those points (values).

[9] See Recommendation 9 in the Commission's Final Report (1976) and the technical report "Simulating Alternative Financing Strategies for Postsecondary Education in New Jersey."

[10] Such techniques have been studied extensively in terms of elementary/secondary public school finance. These techniques are categorized as district power equalizing systems and include guaranteed tax base programs, guaranteed yield programs, and percentage equalizing programs.

expenditure levels at the county colleges. Essentially, a county would receive an amount from the state dependent on both its relative county property value per student and the tax effort made by the county. Thus, wealthy counties would receive only a small incremental amount per student above the current flat-grant amount ($600 per FTE student) while relatively poor counties would receive larger incremental amounts per student above the flat-grant.[11] While the total pool of state funds available for such distribution may be inadequate to fully equalize the counties, any money distributed according to this approach will help to minimize disparities in the system.

A number of alternative financing systems based on this approach are presented below. Table 4 depicts the characteristics of the current financing system, the Simulation Model system and the four alternative systems which will be examined. The alternative systems attempt to address inequities in the current system by using an equalizing formula although each alternative makes different assumptions about the role of the county and the state in financing county colleges.

The intent of this analysis is to demonstrate that county colleges can be financed in a more equitable manner than they are under the present system. However, due to the complexity of the equalizing process employed,[12] the various models are presented in a simplified form. The analysis includes only those counties with county colleges, excluding Hudson County, and considers only county residents attending their home county college. Actual implementation of any of the alternatives would require the addition of a method for equalizing charge-backs as well as a means to account for special

---

[11] Such a system assumes that all counties would continue to receive a $600 per student flat-grant from the state (the present state contribution).

[12] See Appendix A for a discussion of the equalizing formula.

TABLE 4

CHARACTERISTICS OF ALTERNATIVE COUNTY COLLEGE FINANCING SYSTEMS

Alternative Systems	Expected County Contribution	State Flat Grant Magnitude	Equalizing
Present System	Present Contribution	$600/FTE	No
Simulation Model	25% of County College Expenditures	Average of $1137/FTE but Varies by County Depending Upon Distribution of Enrollments by Program	No
Equalizing Model 1A	25% of County College Expenditures	$600/FTE	Yes. Fund available is $537 x FTE's.
Equalizing Model 1B[a]	25% of County College Expenditures	$800/FTE	Yes. Fund available is $337 x FTE's.
Equalizing Model 2A[b]	Present Contribution or 25% of County College Expenditures, whichever is greater	$600/FTE	Yes. Fund available is $537 x FTE's.
Equalizing Model 2B[a,b]	Present Contribution or 25% of County College Expenditures, whichever is greater	$800/FTE	Yes. Fund available is $337 x FTE's.

[a] These models are included in light of the possibility that the New Jersey Legislature might increase the flat-grant to $800 independent of the Commission's recommendations.

[b] These models are included to show the impact of a mutual state-county "hold-harmless" arrangement in which the state continues to contribute a flat-grant and the counties don't reduce their contribution below that made presently.

cases such as the Hudson County College Commission with problems of initial start-up and unequalizable costs.

As a consequence of these facts, the figures presented here are not a totally accurate reflection of the actual effect on county revenues under this methodology. The equalizing models do account for 88% of the total county college enrollment (50,954 FTE out of 57,662 FTE). The number of county residents enrolled out-of-county and the county expenditures on out-of-county students is not consistent across all counties. Thus, there will be variations between the simplified model outcomes and the results of full-scale implementation of any of the models.

In addition, these models are presented within the framework of the Simulation Model developed by the Commission to estimate the cost of implementing its recommendations about the financing of the entire post-secondary education system in New Jersey.[13] In so doing, the equalizing models inherit the following assumptions from the Simulation Model.

(1) The state subsidy to county colleges would be on average $1137 per FTE student, with the actual subsidy varying according to the mix of higher and lower cost programs (technical-scientific versus liberal arts) at a particular college.

(2) The fund available for equalizing is limited in total to the difference between $1137 and the magnitude of any state flat-grant (currently $600 per FTE student), multiplied by the total state county college FTE enrollment. This equalizing fund would be, under most conditions, insufficient to completely equalize the distribution of state allotments in the desired manner.

---

[13] See the Commission's technical report entitled, "Simulating Alternative Financing Strategies for Postsecondary Education in New Jersey."

(3) Counties would be expected to contribute 25% of their county college expenditures under the Commission's recommendations with the provision that any shortfall in county appropriations per FTE student will result in a dollar for dollar reduction in state appropriations.

(4) This analysis uses audited 1974 cost per FTE student, inflated to 1975 values in determining relative county college expenditure levels.[14]

(5) It is assumed that county colleges presently receive $600 per FTE student based on actual enrollment rather than budgeted enrollment.[15]

(6) The impact of "other" sources of income (Federal monies, private gifts, endowment funds, etc.) was not taken into account in estimating probable tuition charges because no reliable or consistent long-range estimates of availability could be made.

Table 5 shows the county contribution per FTE student which is expected under the assumptions governing the various alternative financing systems. In essence, the county contributions shown under the equalizing systems are combinations of contributions listed under the Present System and the Simulation Model. Table 6 indicates the level of state support per FTE student which results from distributing state funds in accordance with the alternative model parameters and an equalizing formula.[16] Under the present system, $600 per FTE student is allocated by the state without regard to the county college in which the student is enrolled. Under the Simulation Model, the amount

---

[14] The 1975 Higher Education Price Index was used as the inflator.

[15] Until 1975 state appropriations to county colleges were adjusted the following year for any discrepancy between actual and budgeted enrollments.

[16] See Appendix A for a discussion of the formula.

TABLE 5

COUNTY SUPPORT PER FTE (in dollars)

County	Present System[a]	Simulation Model[b]	Equalized Model 1A[b]	Equalized Model 1B[b]	Equalized Model 2A[c]	Equalized Model 2B[c]
Atlantic	696	478	478	478	696	696
Bergen	741	448	448	448	741	741
Burlington	755	488	488	488	755	755
Camden	634	363	363	363	634	634
Cumberland	584	349	349	349	584	584
Essex	878	536	536	536	878	878
Gloucester	942	456	456	456	942	942
Mercer	826	494	494	494	826	826
Middlesex	655	395	395	395	655	655
Monmouth	1032	405	405	405	1032	1032
Morris	426	410	410	410	426	426
Ocean	667	405	405	405	667	667
Passaic	1079	538	538	538	1079	1079
Salem	434	461	461	461	461	461
Somerset	1125	466	466	466	1125	1125
Union	515	407	407	407	515	515

[a] County appropriation to its community college divided by the county resident FTE. See Appendix Table C-2 for raw data.

[b] Twenty-five percent of 1975-76 county college expenditures per FTE. See Appendix Table C-2 for raw data.

[c] The larger of either the Present System or the Simulation Model.

TABLE 6

AVERAGE STATE SUPPORT PER FTE (in dollars)

County	Present System	Simulation Model	Equalized Model 1A	Equalized Model 1B	Equalized Model 2A	Equalized Model 2B
Atlantic	600	1,180	1,740	1,546	1,600	1,454
Bergen	600	1,148	782	915	781	915
Burlington	600	1,094	1,367	1,256	1,315	1,224
Camden	600	1,169	1,284	1,243	1,320	1,266
Cumberland	600	1,201	1,482	1,388	1,488	1,392
Essex	600	1,051	1,126	1,093	1,120	1,089
Gloucester	600	1,148	1,301	1,244	1,473	1,353
Mercer	600	1,164	1,642	1,471	1,649	1,476
Middlesex	600	1,196	1,058	1,104	1,058	1,104
Monmouth	600	1,148	1,106	1,121	1,376	1,292
Morris	600	1,137	988	1,043	843	952
Ocean	600	1,105	984	1,032	981	1,030
Passaic	600	1,142	600	800	600	800
Salem	600	1,185	1,545	1,421	1,170	1,174
Somerset	600	1,089	811	925	908	981
Union	600	1,110	964	1,021	878	968
Weighted Average	600	1,137	1,137	1,137	1,137	1,137

allocated would vary by county due to (a) the program mixes which exist at county colleges and (b) the fact that different programs have different costs which cause different levels of total subsidy. However the support levels will be close to $1137, the average state support level for all county college students. The Simulation Model essentially distributes flat-grants which are almost twice the magnitude of those allocated under the present system.

While the average state support distributed per FTE student is also $1137 in each of the alternative equalizing models, the variation in state support per FTE student among counties is very different from the Simulation Model due to the impact of the equalizing formula. The formula has distributed funds in excess of the indicated flat-grant (either $600 or $800) in a way which is sensitive to both variances in county wealth and county effort.

Under the formula, the county with the greatest wealth is ineligible to receive equalizing funds. Thus, for the equalized models displayed in Table 6, Passaic County receives only the appropriate flat-grant per FTE student from the state. The remaining counties receive varying amounts which, when weighted by enrollments, result in an overall average of $1137 per FTE student. Thus, the state has limited the total amount of funds it will allocate to the counties but has, above some "hold-harmless" level, distributed those available funds in a more equitable manner.

At this point it is useful to analyze the degree to which funds are distributed equitably by the four equalizing models. In the previous section several methods for measuring distributional equity were discussed using both hypothetical and actual data.[17] Perhaps the most graphic display of the

---

[17] For an explanation of these statistical terms op.cit. footnote 7.

concept, however, appears in a scattergram, a picture of the relationship between two variables. In a scattergram, cases are plotted according to the particular values of two variables which are common to each case. In a scattergram when there is a distinct relationship between the two variables, the cases plotted cluster around a line. If the cases are scattered and a pattern is not apparent, only a weak relationship exists between the variables.

As indicated previously, when examining equity there is an interest in the relationship between the effort which a county must make in raising its contribution to the county college and the total support it receives through county and state funds. An examination of Figures 1 through 6 reveals those financing systems in which the desired relationship between county effort and total public support is achieved.

While it is difficult to distinguish which system promotes the strongest positive relationship, it is obvious that the Simulation Model is not very different from the Present System, while each of the Equalizing Models would be an improvement as compared to the Present System. The Simulation Model would, in fact, aggravate inequities in the Present System by simply increasing the total state support without adjusting for county wealth and effort. However, the expectation that the counties pay 25% of the county college expenditures under the Simulation Model interacts with the average increase of $537 in state flat-grant to produce what appears to be some improvement in the relationship between effort and public support.

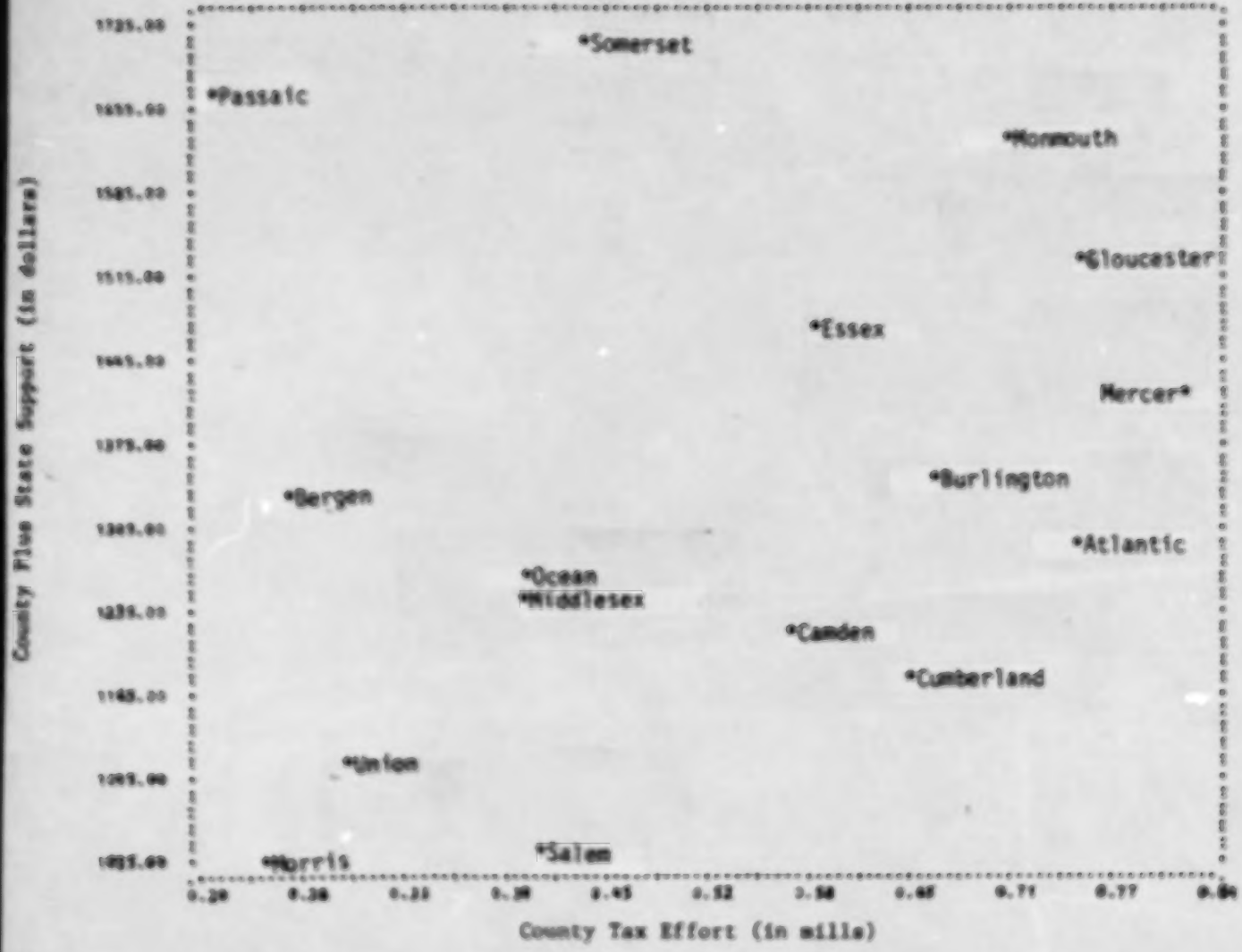

FIGURE 1: SCATTERGRAM OF PRESENT SYSTEM

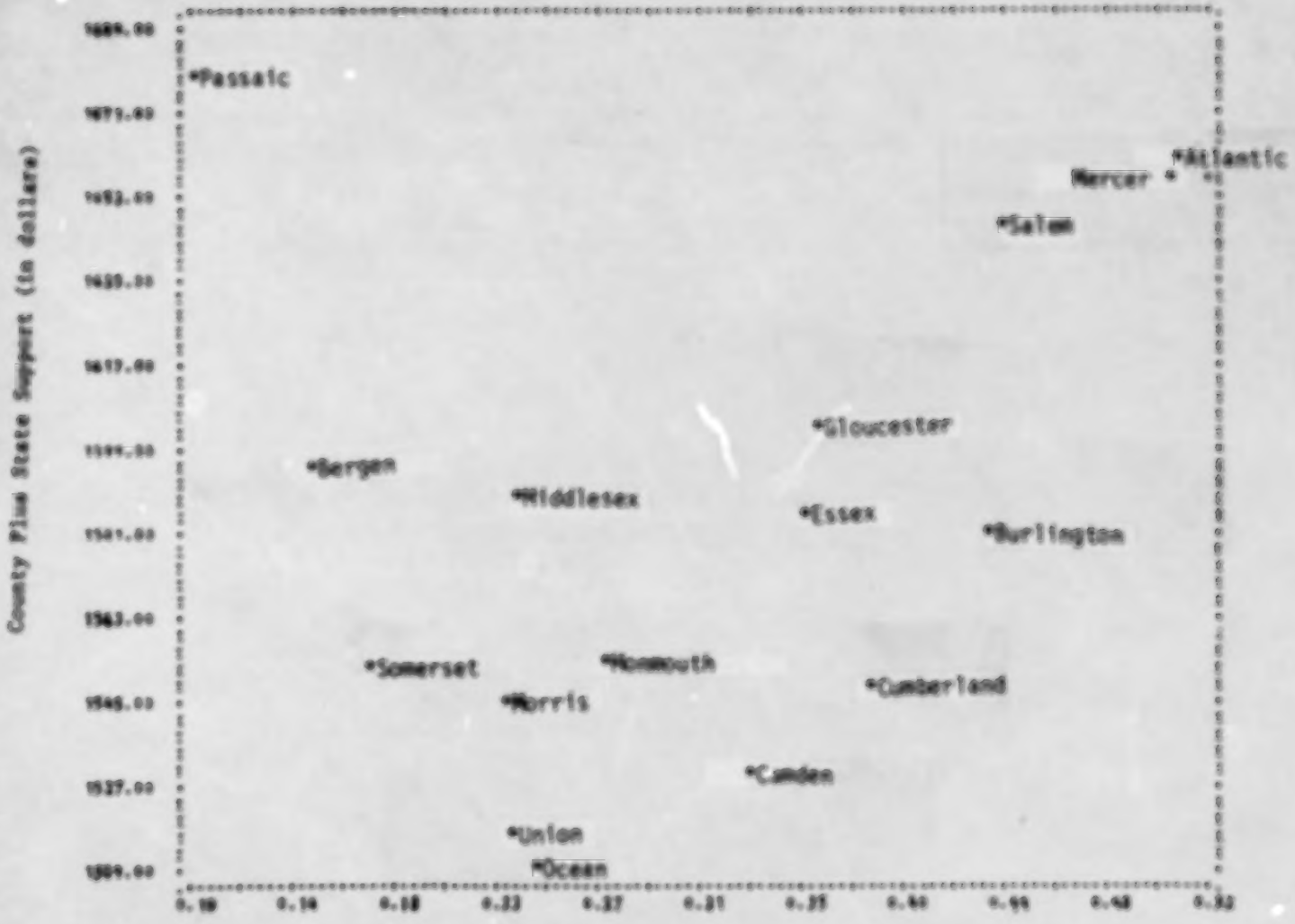

FIGURE 2. SCATTERGRAM OF SIMULATION MODEL

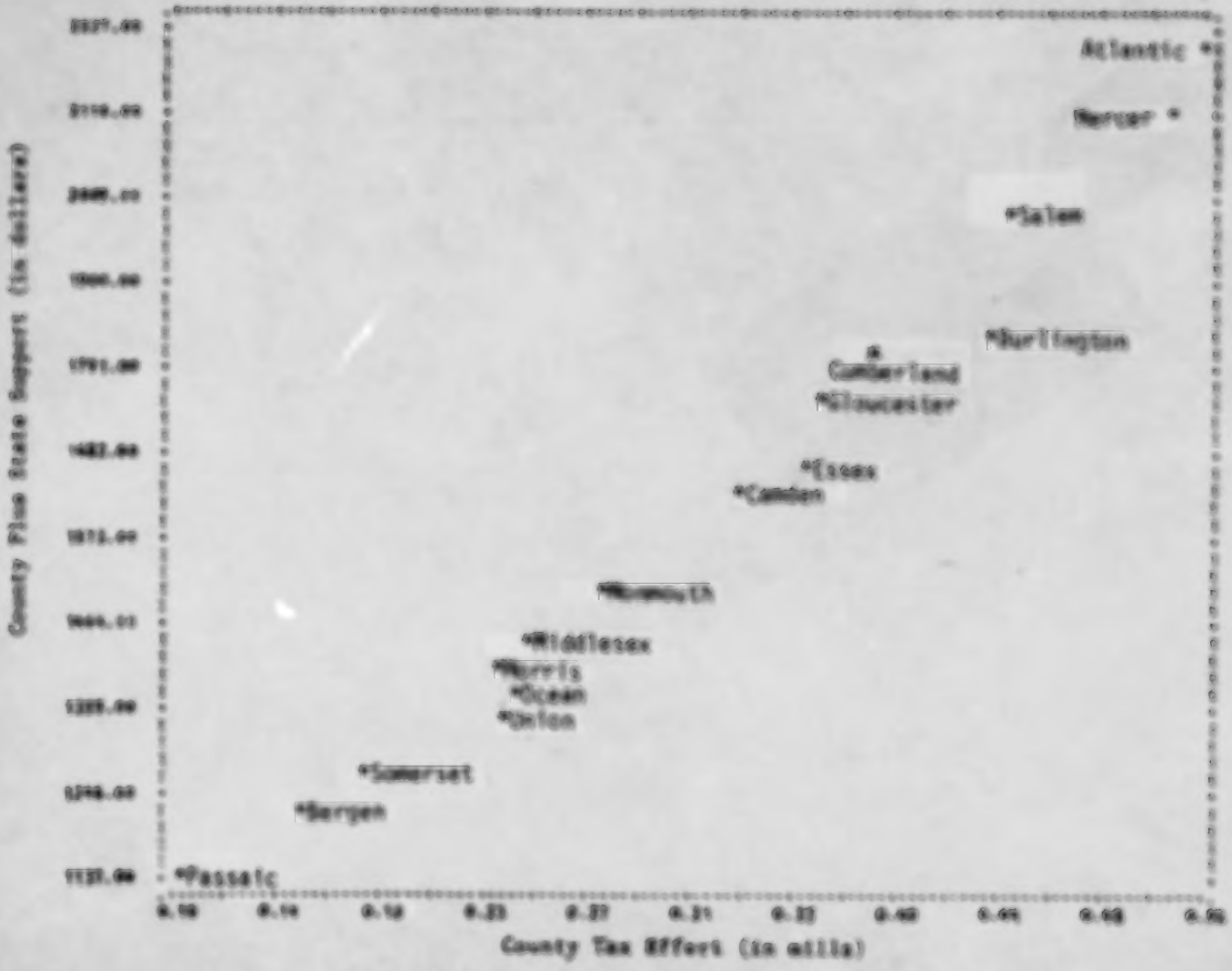

FIGURE 3. SCATTERGRAM OF EQUALIZED MODEL 1A

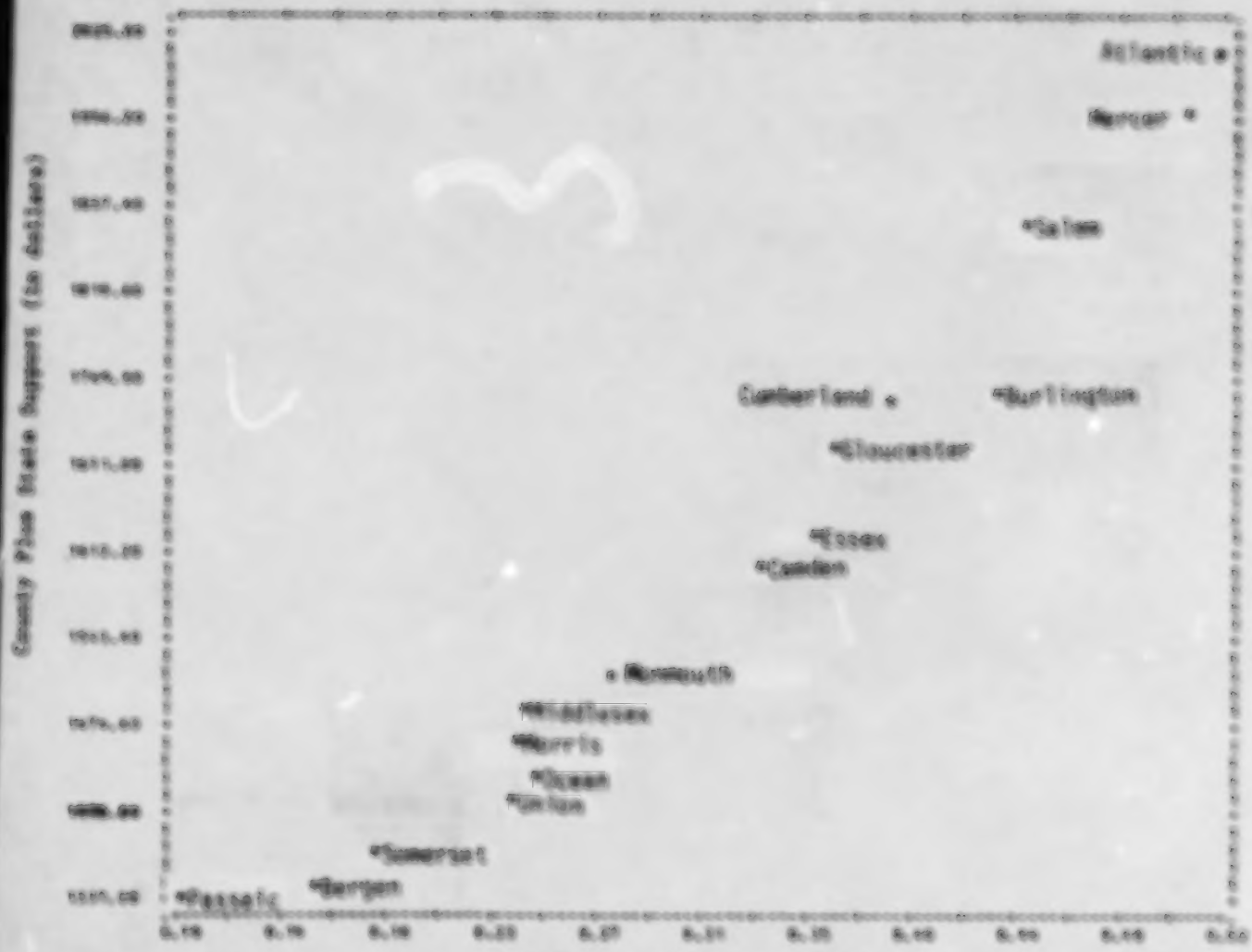

FIGURE 4. SCATTERGRAM OF EQUALIZED MODEL 19

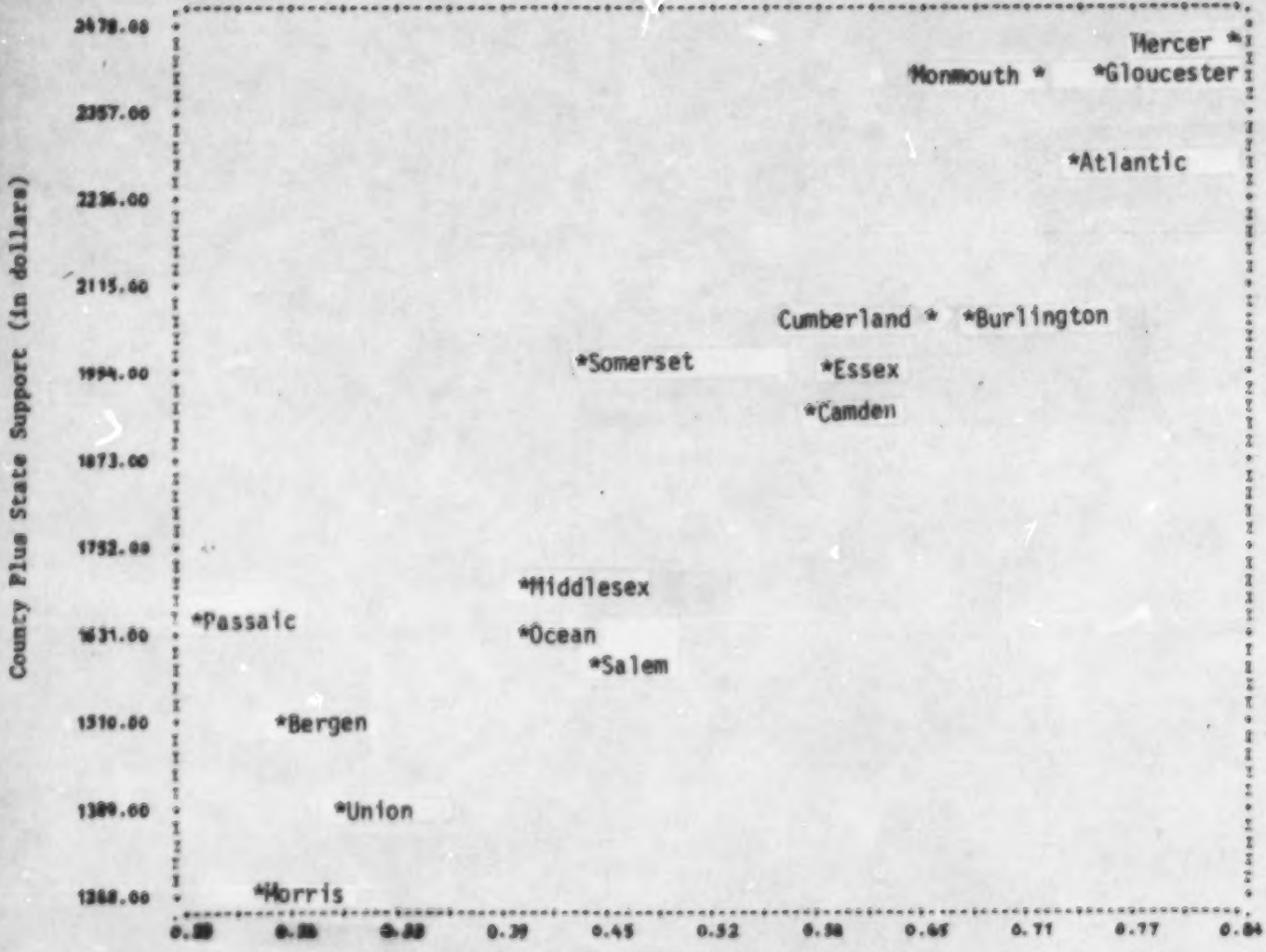

FIGURE 5. SCATTERGRAM OF EQUALIZED MODEL 2A

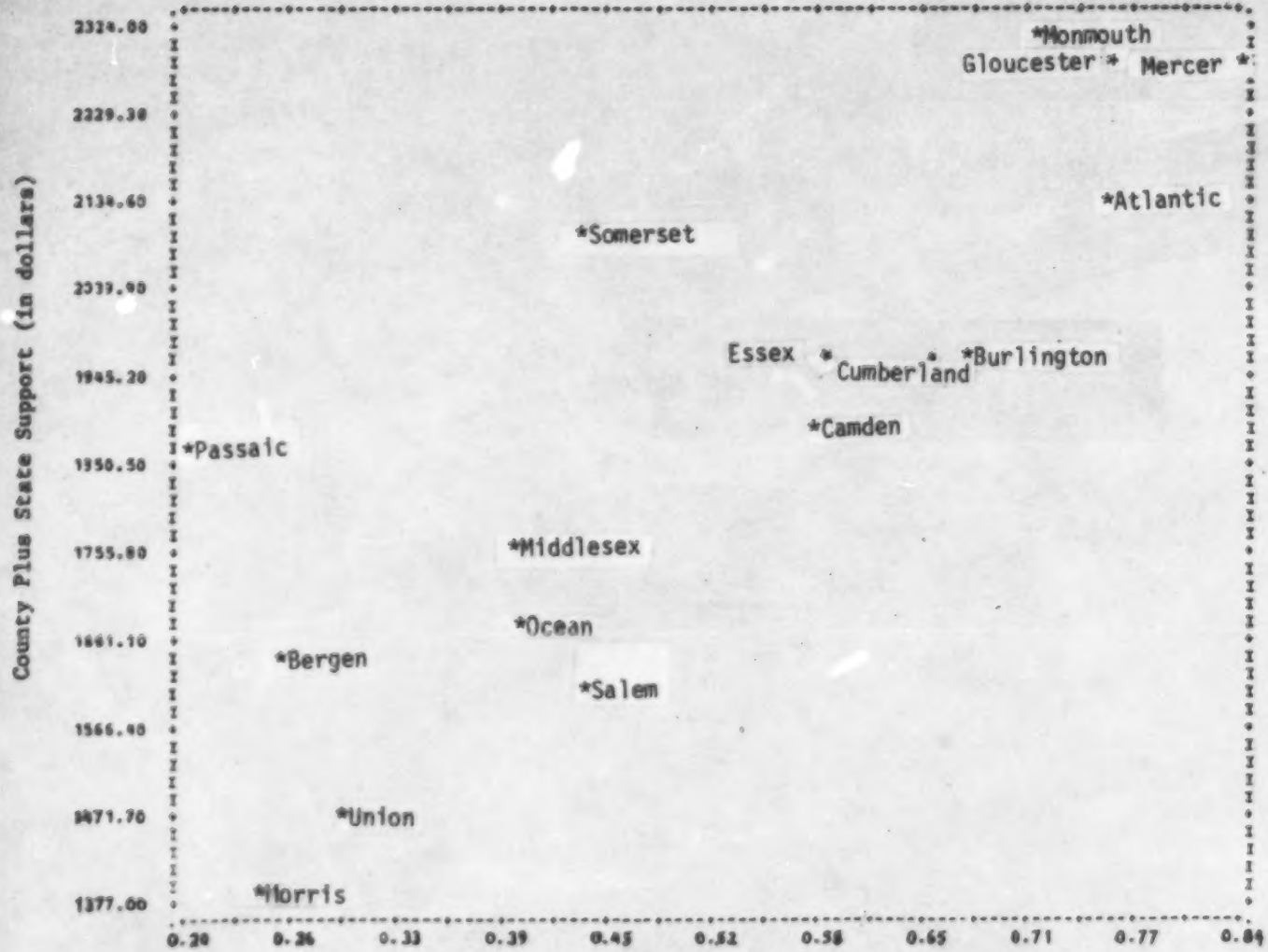

FIGURE 6. SCATTERGRAM OF EQUALIZED MODEL 2B

A more precise measure of the strength of relationship between two variables is the correlation coefficient (r) produced when the variables are correlated. As the points in the scattergram come closer to aligning themselves along a straight line, the value of the correlation coefficient will approach unity (1.00). A positive or negative correlation is determined by which of the two possible diagonals is closest to the points. Table 7 shows the correlation between public support and effort and also indicates the r^2 statistic. The "Ideal System," a perfectly equitable one in which effort completely determines support, would have a perfect positive correlation and all of the variations in support would be explained by the variation in effort. The Present System obviously does not demonstrate this relationship. The Simulation Model would improve the relationship to a limited degree. The four equalizing models clearly increase the position relationship between public support and effort as expected. The relationship is stronger for the equalized models which incorporate a $600 per FTE student flat-grant (1A and 2A) than for the models which assume an $800 per FTE student flat-grant (1B and 2B). Similarly, the relationship is stronger for the models which assume present county support levels.

Another way to measure equity in a county college financing system is by determining the standard deviation of taxing power among the counties. This is a particularly useful technique when alternative systems are being compared since there is an optimum level of standard deviation which exists for an ideal system, i.e. one in which taxing power is equal for all cases, and it is easy to inspect the relative standing of each alternative. Table 8 shows county taxing power under each of the alternative financing systems being examined. The variation among the taxing power of counties is large under the Present System, with the highest taxing power almost five times the

TABLE 7

RELATIONSHIP BETWEEN TOTAL PUBLIC SUPPORT AND EFFORT

	"Ideal" System	Present System[a]	Simulation Model	Equalized Model 1A	Equalized Model 1B	Equalized Model 2A	Equalized Model 2B
r	1.00	.23	.31	.99	.98	.92	.83
r^2	1.00	.05	.10	.98	.95	.85	.68

[a] The r and r^2 statistics differ from those presented earlier in the paper due to the fact that counties without a county college, students crossing county lines to attend community college, and Hudson County are not considered. These changes simplify the presentation and make all models comparable.

TABLE 8

TAXING POWER[a]
(in dollars per .01 mill)

County	Present System	Simulation Model	Equalized Model 1A	Equalized Model 1B	Equalized Model 2A	Equalized Model 2B
Atlantic	17.0	31.6	42.3	38.9	30.1	28.3
Bergen	52.0	102.2	78.8	85.2	59.0	63.7
Burlington	20.0	36.4	42.7	40.6	30.8	29.5
Camden	21.2	45.9	49.4	48.7	33.5	32.8
Cumberland	18.2	39.8	47.0	44.5	31.8	30.4
Essex	25.2	44.4	46.5	45.2	34.1	33.3
Gloucester	20.3	43.6	47.7	45.9	31.8	30.2
Mercer	17.0	33.1	42.6	39.3	29.6	27.4
Middlesex	31.1	65.4	59.7	62.5	42.4	44.0
Monmouth	22.9	55.5	54.3	54.5	33.8	32.7
Morris	41.9	65.5	59.2	60.6	51.8	55.1
Ocean	31.6	62.0	57.0	59.8	41.1	42.4
Passaic	84.5	169.6	114.9	133.8	84.5	94.0
Salem	24.8	37.1	45.3	42.8	36.2	36.5
Somerset	39.3	85.5	70.3	77.2	46.3	47.9
Union	37.8	65.1	58.8	62.0	47.2	49.4
Low	17.0	31.6	42.3	38.9	29.6	27.4
High	84.5	169.6	114.9	133.8	84.5	94.0
Weighted Average	30.6	59.8	56.2	57.5	41.0	41.9
Standard Deviation	16.90	33.81	17.97	23.40	13.92	16.86

[a] Sum of corresponding figures in Tables 5 and 6 divided by 100 times the corresponding mill rate. See Appendix Table C-3 for appropriate mill rates.

magnitude of the lowest taxing power. The resulting standard deviation is far from the ideal of 0.00 desired. The distribution of funds under the Simulation Model magnifies the standard deviation, doubling it as compared to the Present System. If the state were to raise its contribution to the county colleges in the form of a larger flat-grant per FTE student, particularly if a reduction in expected county contribution resulted, greater disparities among the counties in terms of their ability to generate funds would occur. With a flat-grant at least equal to the current $600 per FTE student assumed in any system of state support for county colleges, it would be difficult to reduce the standard deviation below its Present System value. The purpose of equalizing a portion of the state's support, however, is to keep increases in the standard deviation to a minimum.

The standard deviation of taxing power for each of the equalizing models is less than that of Simulation Model and, in the case of Equalized Models 2A and 2B, is slightly less than that of the Present System. As in the case of the correlation coefficient, the standard deviations of equalizing models which incorporate a $600 flat grant are lower than those of the equalizing models which assume an $800 flat-grant. However, unlike the correlation coefficient, the standard deviations of equalizing models which require a county contribution at least equal to the present contribution are lower than those of equalizing models which assume a county contribution equal to 25% of county college expenditures.

In addition to affecting the magnitude of the county and the state contribution to county colleges and the relationship between public support and county effort, distributing funds in an equalizing manner will have an impact on the level of county college tuition charges. Given no other sources of revenue, tuition is an artificial amount which is calculated to

eliminate the difference between county college expenditures and public support provided through the county and the state.[18] Table 9 displays estimated tuitions for each of the finance models. There is considerable variation in estimated tuition levels, including negative amounts in some cases (meaning that the sum of county plus state support per FTE student is greater than total expenditures per FTE student at a given college). Similarly, some of the figures shown under the "Present System" appear to be larger than actual tuition charges.

The reasons for these discrepancies are numerous. Tuitions may appear to be high because "other" source revenues and "prior year balances" have not been analyzed to discount the difference between revenues and expenditures. For those models in which county support is set at 25% of college expenditures, county appropriations are typically lower than present appropriations (only Salem County must increase its present effort to raise 25% of its county colleges expenditures). Reduced county support will result in higher tuitions, particularly for the equalizing models in which wealthier counties will not receive large state equalizing appropriations to offset the reduced county support. An assumption is made under "Present System" that the state appropriates $600 per FTE student enrolled. In fact, only "State Funded FTE's" received the subsidy and state appropriations per actual FTE student averaged considerably less than $600 across the state, resulting in lower state support and an increase in estimated tuition. Similarly, tuitions will appear low in some cases because the state subsidy level set in the Simulation Model results in a support level close to present county college expenditures. When county support is added to state support and

---

[18] See Appendix C for a display of county college expenditures.

TABLE 9

ESTIMATED TUITION PER FTE[a]

County	Present System	Simulation Model	Equalized Model 1A	Equalized Model 1B	Equalized Model 2A	Equalized Model 2B
Atlantic	617	255	-305	-110	-383	-236
Bergen	452	197	563	430	272	138
Burlington	599	371	98	210	-116	-25
Camden	217	-81	-196	-155	-503	-449
Cumberland	214	-153	-434	-339	-674	-577
Essex	666	557	482	516	146	177
Gloucester	282	221	68	124	-591	-471
Mercer	551	319	-159	12	-498	-324
Middlesex	326	-10	128	82	-132	-178
Monmouth	-10	68	110	95	-786	-702
Morris	615	94	242	187	372	263
Ocean	353	110	230	183	-29	-78
Passaic	471	470	1013	813	471	271
Salem	810	198	-162	-38	240	236
Somerset	138	308	586	472	-170	-244
Union	512	110	256	200	234	144

[a] These tuitions have been calculated assuming current county college expenditure levels and county and state contributions as indicated in Tables 5 and 6. The counties will be able to react to an equalizing formula in a variety of ways in addition to those outlined and, therefore, the tuitions indicated are not the ones which would probably result from implementing any of the Equalized Models. In addition, many tuitions listed exceed current state limits and if the state were to maintain or reduce the tuition ceiling, the counties would have to make the efforts different from those assumed in the table.

the sum is subtracted from county college expenditures a negative tuition can result.[19] Finally, given the large variations in county wealth and extremely high tax efforts that some of the poorer counties make, providing equal revenues for present efforts would result in very large equalizing appropriations, out of proportion to actual expenditures.

For all of the above reasons, the tuitions shown in Table 9 probably are not accurate estimates of what tuition would become under any of the models. In fact, the variation in tuitions is more useful as an indicator of revenue flows to the county colleges. As a result of implementing any of the equalizing models changes would be expected in tax rates, county college expenditures and tuition charges. An example of some possible county responses to the implementation of an equalized model is discussed in Appendix B.

IV

Conclusions

When the state became a partner with the counties in providing support to the county colleges it accepted an implicit responsibility to distribute funds equitably. As defined in this paper, equity requires that counties which made the same effort should be able to provide the same support for their community colleges. Since counties vary in their property wealth as well as in the effort they wish to make in supporting their colleges, the state must make its contribution sensitive to both these variables.

---

[19] Cumberland County College for instance has an estimated FY 76 expenditure per FTE student of $1398. The Simulation Model generates $1201 per FTE student in state support, given the program mix at Cumberland County College. Even if Cumberland County's support level is set at only 25% of its college's expenditures ($349 per FTE student) the resulting estimated tuition is $-152 (1398 - [1]01 + 349] = -152).

The analysis of the present system by which the state supports county colleges indicates it is insensitive to the disparities in both county wealth and effort. If the state were to increase its support of county colleges as a result of implementing the Commission's recommendations and the incremental support was distributed in the same manner as now, through a flat-grant per student, the inequities in the Present System would be exacerbated. An alternative to this distributional scheme is for the state to set an appropriate level for the flat-grant so that no county receives less per student in the future than it does presently, and to distribute funds above that level through an equalizing formula. Such a formula would treat all counties as if they had the same property wealth per student and would consider the effort which a county made in generating what it considered to be an appropriate support level for its county college. Local decision making would be preserved through such a system since the state would not determine the level of county effort or the level of county college expenditures.

Distributing state funds through an equalizing formula should improve the relationship between county effort and total support generated for that county's community college. Using the measures of distributional equity discussed in this paper, any of the variations of the equalizing formula can be shown to produce better outcomes than simply increasing the flat-grant per student. It would appear that a formula which utilized a $600 flat-grant and which required counties to make at least the same effort as they are presently produces the best outcomes while incorporating appropriate "hold-harmless" provisions.

While it is difficult to predict how the counties would react to any equalizing formula it is clear that changes in county support, county college expenditures, and tuition levels might result. No county should be placed in a position worse than it is in at present. Most counties should be able to lower tuition or raise county college expenditures while making the same tax effort. Many counties will be able to reduce their effort and maintain present programs. Most importantly, the relative position of poorer counties should improve and the wide variations among counties which presently exist should be alleviated.

Many additional factors must be considered before implementing any of the plans outlined. A system of charge-backs should be developed so that students from one county attending community college in another county are treated appropriately. A system which allows the state to treat counties in a uniform manner with respect to property assessment must be created. If the property tax continues to serve as the basis for generating revenue for county colleges, it may be necessary for counties to collect taxes directly for county colleges rather than simply allocating county college revenues from general property tax revenues.

Considerable work must be done before any of the systems discussed above can be implemented. However, it has been shown that current practices result in inequities which would be exacerbated if state support for county colleges were to increase. Methods do exist to alleviate this problem so that the state fulfills its obligation to distribute funds equitably and counties retain control over county college expenditures and county tax rates.

Appendix A

The equalizing models all incorporate a formula to simulate the distribution of state funds. The formula is designed to guarantee that when two counties make the same tax effort, both raise the same level of support. This is done by treating all counties as if the wealth available to each county is equal.[1] In fact, the wealth assumed to be available to all counties is that which is available to the wealthiest county. The only constraint preventing the attainment of exact equality under these circumstances is that the state predetermines a limit on the total amount of funds which it will make available for the support of county colleges.[2] When the magnitude of funds needed to fully equalize counties exceeds the amount the state is willing to spend, each county receives the same percentage of available funds it would have received if the funds had been unlimited.

The total amount of funds which the state is willing to allocate to county colleges is a function of the number of students, their distribution in certain programs and the amount of support which the state provides per student in those programs.[3] Once these variables are known, an average per student support level can be determined for a county college student. When the amount (S) is multiplied by the total number of county college students (FTE_T), the product is the total state support level for county colleges.

1

2 Effort, support and wealth were defined on pages 7, 8 and 11.

This support level is prescribed through implementation of the Commission's recommendations, as outlined in the Final Report (1976).

3 See the Commission's Technical Report "Simulating Alternative Financing Strategies for Postsecondary Education in New Jersey," (1976) for a discussion of this funding process.

A portion of this total state support will be distributed to counties through flat-grants per student. The total funds to be so distributed are the product of the flat-grant amount (F) and the total number of county college students (FTE_T). Therefore, the amount of funds to be distributed in an equalizing manner is:

$$(S)\ (FTE_T) - (F)\ (FTE_T)$$

The magnitude of each county's contribution to its community college is found by multiplying its property wealth by an implicit county tax effort. In fact, counties normally tax property wealth for many purposes and distribute a portion of the funds generated to the county college. The implicit effort reflects the magnitude of the tax which would have been imposed to raise funds solely for the county college. Since wealth differs among counties, the state is concerned about equalizing the difference between what a county generates as support using its own wealth and what it could generate if it had the wealth of the wealthiest county available to it. This difference per student is defined as:

$$(W_w - W_i)\ (E_i)$$

Where W_w is the wealth of the wealthiest county, W_i is the wealth of a particular county, and E_i is the tax effort made by that particular county.

When this amount is summed across all counties the total is the amount which the state must fund to equalize all counties. The ratio of the amount of money which the state will allocate for equalizing purposes to the amount needed to fully equalize all counties is the uniform proportion of required funds which will be made available to all counties. This proportion is symbolized in the formula as:

$$\sum_{i=1}^{n} \frac{(S - F)\ (FTE_T)}{(W_w - W_i)\ (E_i)}$$

where n is the number of counties.

When this proportion is multiplied by the amount of funds which are required for equalization in a particular county, the amount of equalizing funds which will actually flow to that county is:

$$\left[\sum_{i=1}^{n} \frac{(S - F)\ (FTE_T)}{(W_w - W_i)\ (E_i)}\right] (W_w - W_i)\ (E_i)\ (FTE_i)$$

This amount must be weighted to reflect the program mix of the students within a particular county college since the amount of funds which would flow to a county will vary by differences in that mix. Table A-1 shows what this weight would be for each county in FY 76 for each level of flat-grant employed in the equalizing models. If the program mix ratio is symbolized as P_i, the amount of funds flowing to the county from the state will be the sum of the equalizing funds and the flat-grant funds as follows:

$$\left[\sum_{i=1}^{n} \frac{(S - F)\ (FTE_T)}{(W_w - W_i)\ (E_i)}\right] \left[(W_w - W_i)\ (E_i)\ (FTE_i)\ (P_i) + (F)\ (FTE_i)\right]$$

In simplified form, the amount of funds generated within a particular county including both state and county support, would be:

$$(FTE_i) \left[\frac{(S - F)\ (FTE_T)\ (W_w - W_i)\ (E_i)\ (P_i)}{\sum_{i=1}^{n} (W_w - W_i)\ (E_i)} + (F) + (W_i)\ (E_i)\right]$$

The nature of the formula is such that the wealthiest county will never receive equalizing funds. That is, the wealthiest county will receive no funds from the state in excess of the flat-grant amount.

Appendix A

Table A-1

Values of P for Each County at Different Flat-Grant Levels[a]

County	$600 Flat-Grant	$800 Flat-Grant
Atlantic	1.08	1.13
Bergen	1.02	1.03
Burlington	.92	.87
Camden	1.06	1.10
Cumberland	1.12	1.19
Essex	.84	.75
Gloucester	1.02	1.03
Mercer	1.05	1.08
Middlesex	1.11	1.18
Monmouth	1.02	1.03
Morris	1.00	1.00
Ocean	.94	.90
Passaic	1.01	1.02
Salem	1.09	1.14
Somerset	.91	.86
Union	.95	.92

[a] This table is for use in actual calculations. The numbers are the values of "P" referred to in this Appendix for each county. The average state allocation per county college FTE has been set at $1137. Each county would receive a different amount under the Simulation Model (see Table 6). The amount of funds available for equalizing is the difference between what a county would receive under the Simulation Model and the state flat-grant. The ratio P is the quotient which results by dividing this amount by the difference between $1137 and the flat-grant. Thus, if a county would have received $1316 under the Simulation Model and the flat-grant is $600, its P is found as follows:

(1) $P = \frac{1316 - 600}{1137 - 600}$

(2) $P = \frac{716}{537}$

(3) $P = 1.33$

Appendix B

An Example of County Responses to an Equalizing Model

There are many possible responses which counties could make to a county college finance system which both increases the state's commitment to the college and distributes funds above a "hold-harmless" level in an equalizing manner. County college expenditure levels, county college tuitions, and county tax rates are all likely to change when a new funding mechanism is implemented. These changes are difficult to predict because the amount of money to be distributed through the equalizing formula will be determined by the total number of students enrolled in county colleges. The distribution of the money will be dependent upon the interaction of the following valuables: 1) the number of students attending particular county colleges; 2) the number of students in particular county college programs; 3) county property wealth per student; 4) county tax effort; 5) county college expenditure levels.

Unlike other funding formulas which could guarantee the availability of funds in one county independent of what is occurring in another county, the formula proposed in this paper distributes funds depending upon the relative position of counties, so that a particular county receives funds which in part are dependent upon its actions but are also dependent upon the actions of all other counties. This suggests that there is probably an optimal solution to the distributional problem; that is, there is a point at which the distribution of funds would appear to be most equitable from the state's perspective, using the measures of equity discussed in the paper. It is unlikely that, with counties acting individually, that point will ever be reached. Over time, counties will develop strategies which will maximize their own interests.

The state will never be completely satisfied under this condition but the improvements in distributional equity in conjunction with the maintenance of county autonomy should adequately justify changes made in the financing system.

In light of the above discussion it is difficult to show exactly what would happen if any of the four equalizing models were implemented. Given sixteen counties and the number of variables involved, the number of combinations of responses soon becomes enormous. Therefore, in order to demonstrate that different outcomes do result when different strategies are taken by counties, an example has been constructed based on the three county example used in Tables 1 and 2 of the paper.

Row (1) in Table B-1 shows the counties as they are operating under "present" conditions. In this case, the state is providing flat-grants of $600 to each student although the counties have widely varying wealth (see Table 1) and are making widely varying tax efforts. An assumption is made for this example that the counties each desire to provide a single student with a program costing $2,100. Under present conditions, Counties A and B make the same contribution, although the effort required of County B to do so is twice County A's effort. County C makes three times County A's effort but raises only $750. When the state and county contribution are combined and then subtracted from the $2,100 expenditures level, the tuitions indicated result. Total support generated per .01 mill varies widely, with County A raising almost four times as many resources per .01 mill as County C.

With the implementation of an equalizing formula to distribute funds above the $600 level and a provision that counties must contribute 25% of their county college expenditures, the amount of equalizing funds available

Table B-1

EXAMPLE OF POSSIBLE COUNTY RESPONSES TO EQUALIZING FORMULA AND RESULTING OUTCOMES[a]

Explanation	County	Effort	Required State Equalizing Grant	Adjusted State Equalizing Grant[b]	State Flat Grant[c]	County Contribution	Total Support	Total Support Per .01 Mill	Tuition
(1) No Equalizing Funds Available	A	1.0	0	0	600	1000	1600	16.00	500
	B	2.0	0	0	600	1000	1600	8.00	500
	C	3.0	0	0	600	750	1350	4.50	750
(2) Equalizing With Same County Effort As Prior To Equalizing	A	1.0	0	0	600	1000	1600	16.00	500
	B	2.0	1000	500	600	1000	2100	10.50	0
	C	3.0	2250	1125	600	750	2475	8.25	-375
(3) Counties B and C Reduce Effort To Minimum Required	A	1.0	0	0	600	1000	1600	16.00	500
	B	1.1	550	418	600	550	1568	14 25	332
	C	2.1	1575	1197	600	525	2312	11.01	-212
(4) County B Reduces Effort Somewhat While County C Reduces Effort To Below Minimum Required	A	1.0	0	0	600	1000	1600	16.00	500
	B	1.3	650	527	600	650	1777	13.67	323
	C	1.8	1350	1094	525	450	2069	11.49	31
(5) All Counties Make The Same Effort And Attempt To Equalize Tuition Levels	A	1.3	0	0	600	1300	1900	14.61	200
	B	1.3	650	650	600	650	1900	14.61	200
	C	1.3	975	975	400	325	1700	13.08	400

[a] Assuming county wealth as indicated in Table 1, a single student in each county, and a desired expenditue level of $2100 in each county.

[b] The total amount of equalizing funds available is $1611, three students multiplied by $537. Therefore, the amount actually used is some portion of that needed. Required amounts are adjusted in similar proportions for all counties.

[c] The state flat grant is $600 unless the county makes less than a 25% contribution ($525 in this example). When the county's contribution is insufficient, the state reduces its flat grant dollar for dollar.

for distribution is $1,611 (assuming an average state subsidy of $1,137). Among the many responses which might be made in order to capture some of the equalizing funds while maintaining reasonable tuition levels, reducing taxes, and continuing to spend $2,100, the counties could continue to tax themselves at the same rate that existed under the "present" flat-grant system. If the counties were to take this course of action, the equalizing formula would determine how much money was required to completely equalize the system and then allocate a proportion of that amount so as not to exceed $1,611 in total grants. The required state equalizing grant and the adjusted state equalizing grants are shown in row (2) of Table B-1. County A, the wealthiest county, receives no equalizing funds by definition (see Appendix A for a discussion of the formula). Since the counties would each make a contribution in excess of $525 (25% of the $2,100 expenditure level), the state would allocate the full $600 flat-grant in addition to the appropriately adjusted equalizing grant. County contributions would remain the same as they were under the present system and total support as indicated would be generated. While there would be some improvement in the relationship among counties in terms of total support raised per .01 mill, tuitions would be eliminated in County B and reduced to a negative level in County C.

Assuming that County B sees no reason to eliminate tuitions and County C does not want to raise its expenditure level above $2100, an alternative strategy would be for those counties to reduce their contribution to the minimum required in order for them to continue to receive the full value of the state's flat-grant. The outcomes for this strategy are shown in row (3) of Table B-1. County effort (rounded to the nearest .1 mill) has decreased considerably for Counties B and C while County A has maintained

its original effort in order to retain a $500 tuition level. The provision that counties must contribute 25% of county college expenditure means that County C must make more than twice the effort of County A in order to avoid losing any portion of the state's flat-grant. Again, the equalizing formula requires more funds than are available to fully equalize the counties and an adjusted proportion of this amount is actually allocated. The combination of state and county support provides enough resources to County B at its reduced effort level so that tuition only rises slightly above that charged in County A. County C continues to attract more resources than it requires to offer a $2,100 program, even at the reduced effort level, resulting in a negative tuition. The disparity in the total support provided per mill has been reduced significantly resulting in an improvement in distributional equity.

A different strategy could be taken by the counties in light of these outcomes. County B might reduce its effort from an original value of two mills to some level above the minimum required while County C could reduce its effort below the minimum in order to approach parity with the other counties. Under these circumstances, as indicated in row (4) of Table B-1, the disparity in county effort is reduced as is the variation in total support per .01 mill. County C will lose $75 of state flat-grant since it does not make sufficient effort to provide the required $525 of county support. Even so, the total support per .01 mill rises for County C. While County B has reduced its tuition, county C must now charge some tuition to attain a $2100 program.

There is a point at which counties should be able to make the same effort, raise the same support per unit of effort, and charge the same tuition for programs requiring the same expenditures. Such a point is illustrated in

row (5) of Table B-1. In this case, County A has raised its level of effort to that of County B in order to reduce tuition while County C has lowered its effort to that of County B, well below the minimum level required to meet 25% of its expenditures. Under these conditions, the amount of equalizing funds required by the formula is exactly the same as the amount available for distribution. The state flat-grant to County C has been reduced by $200, the difference between what the county raises and what it is required to raise in order to receive the full $600 flat-grant. Total support is almost equalized as are total support per .01 mill and tuition, each of which varies by $200 in the case of County C. Were it not for the required county contribution, this strategy would represent the best solution for the distribution of state funds. Unfortunately, the solution requires uniformity in county college expenditures and county tax rates, an outcome likely to occur only by chance and one which the state cannot require if county autonomy is to be preserved.

This example is useful in demonstrating both the range of possible responses which counties could make to an equalizing formula as well as in identifying the complex problems which arise in implementing an equalizing formula in conjunction with a "hold-harmless" flat-grant and a required level of county contribution.

Appendix C

The purpose of this appendix is to give the reader the necessary raw and intermediate data to reproduce the figures presented in the paper. Most of the calculations were actually made using a computer, including scattergrams, correlations, and any results based on the equalizing formula presented in Appendix A.

Table C-1 contains the data used to calculate the indices presented in Table 3. This Table includes data for all students attending county college in New Jersey in 1974-75.

Tables C-2 and C-3 contain data used in the equalizing examples. These tables contain data for students attending county colleges in their county of residence, excluding Hudson County.

Appendix C

Table C-1

Raw Data for Calculations in Table 3

County	Total Property Value[a] (in 000's)	FTE[b]	County College Appropriations[c] (in 000's)
Atlantic	2,039,320	2,285	1,566
Bergen	13,047,801	5,344	3,924
Burlington	3,419,309	3,305	2,357
Camden	4,514,983	4,295	2,700
Cape May	1,956,751	374	135
Cumberland	1,024,261	1,229	694
Essex	8,413,498	6,340	5,081
Gloucester	2,007,873	1,908	1,557
Hudson	4,732,126	1,089	681
Hunterdon	1,344,043	461	416
Mercer	3,460,411	3,524	2,907
Middlesex	9,263,062	6,182	3,863
Monmouth	6,084,527	4,412	4,375
Morris	7,227,701	4,253	1,801
Ocean	4,888,655	3,040	1,994
Passaic	5,444,207	1,430	1,212
Salem	599,076	669	282
Somerset	3,499,600	1,751	1,672
Sussex	1,440,129	524	295
Union	7,752,346	4,725	2,476
Warren	1,013,679	302	189

a
Property value is expressed at 100% valuation.
Source: Annual Report of the Division of Taxation in the Department of the Treasury for the Fiscal Year 1975. "Abstract of Ratables and Exemptions in the State of New Jersey for the Year 1975." Column 11, p. 221.

b
All full-time students plus 1/3 times all part-time students. County residents attending any New Jersey county college are counted.
Source: Taken from New Jersey HEGIS form 20175, p. 10.

c
Includes both appropriations to in-county colleges and reimbursements to out-of-county colleges.
Source: Audit reports published by the Department of Community Affairs, Division of Local Government Services.

Appendix C

Table C-2

Raw Data for Calculations in Tables 3 and 4

County	FTE[a]	County College Appropriations[b] (in 000's)	County College Expenditures Per FTE[c]
Atlantic	2,236	$1,750	$1,914
Bergen	9,242	3,882	1,793
Burlington	3,863	2,297	1,934
Camden	4,151	2,430	1,431
Cumberland	1,143	667	1,398
Essex	5,817	4,931	2,144
Gloucester	1,620	1,527	1,824
Mercer	3,508	2,950	1,970
Middlesex	5,706	3,740	1,381
Monmouth	4,198	4,331	1,621
Morris	4,160	1,771	1,641
Ocean	2,941	1,961	1,619
Passaic	1,003	1,082	2,150
Salem	576	250	1,844
Somerset	1,386	1,337	1,862
Union	4,444	2,299	1,627

a
All full-time students plus 1/3 times all part-time students. Only county residents attending their home county college are counted.
Source: Taken from New Jersey NSCIS form 201/75, p. 10.

b
Includes only appropriations to in-county colleges
Source: Audit reports published by the Department of Community Affairs, Division of Local Government Services.

c
1974-75 audited expenditures per FTE inflated by 9.6% (Higher Education Price Index, 1974-75)
Source of 1974-75 figures: Community College Office, New Jersey Department of Higher Education

Table C-3

Data Required for Calculating in Table 8

County	Wealth[a]	Present System Effort[b]	Simulation Model Effort[b]
Atlantic	$ 912,039	.76 mills	.52 mills
Bergen	2,870,622	.26	.16
Burlington	1,123,730	.67	.43
Camden	1,087,686	.58	.33
Cumberland	896,116	.65	.39
Essex	1,498,219	.59	.36
Gloucester	1,239,428	.76	.37
Mercer	986,434	.84	.50
Middlesex	1,623,390	.40	.24
Monmouth	1,449,387	.71	.28
Morris	1,737,428	.25	.24
Ocean	1,662,242	.40	.24
Passaic	5,427,923	.20	.10
Salem	1,040,063	.42	.44
Somerset	2,561,933	.44	.18
Union	1,744,452	.30	.23

[a] Total property value (from Table C-1) divided by FTE (from Table C-2).

[b] County Support (from Table 5) divided by wealth, times 1000.

UNIVERSITY OF CALIF.
LOS ANGELES

NOV 9 1979

CLEARINGHOUSE FOR
JUNIOR COLLEGES